FIG. 1

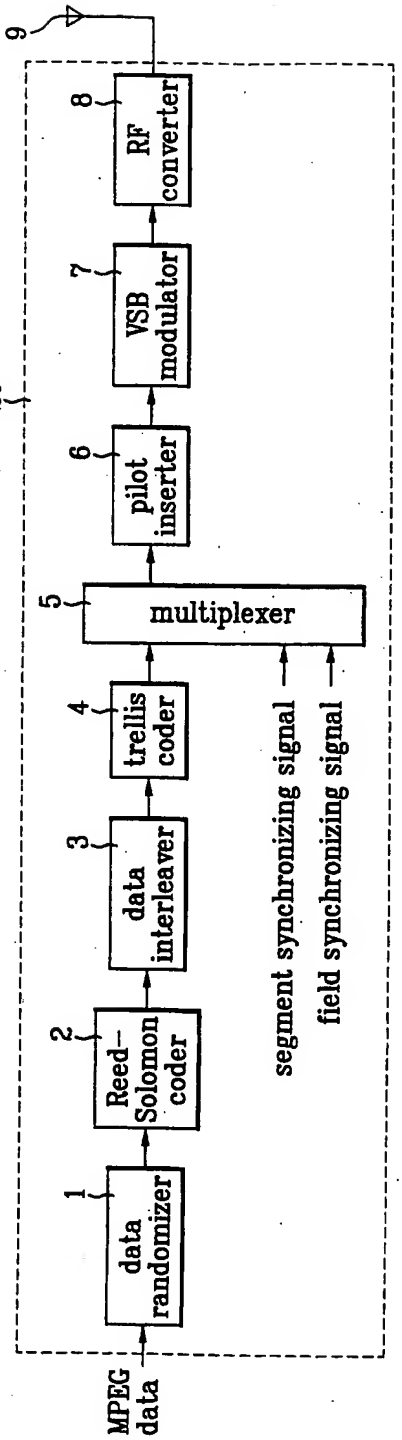

MPEG data
1
data randomizer
2
Reed-Solomon coder
3
data interleaver
4
trellis coder
5
multiplexer
6
pilot inserter
7
VSB modulator
8
RF converter
9
25
segment synchronizing signal
field synchronizing signal

FIG. 2

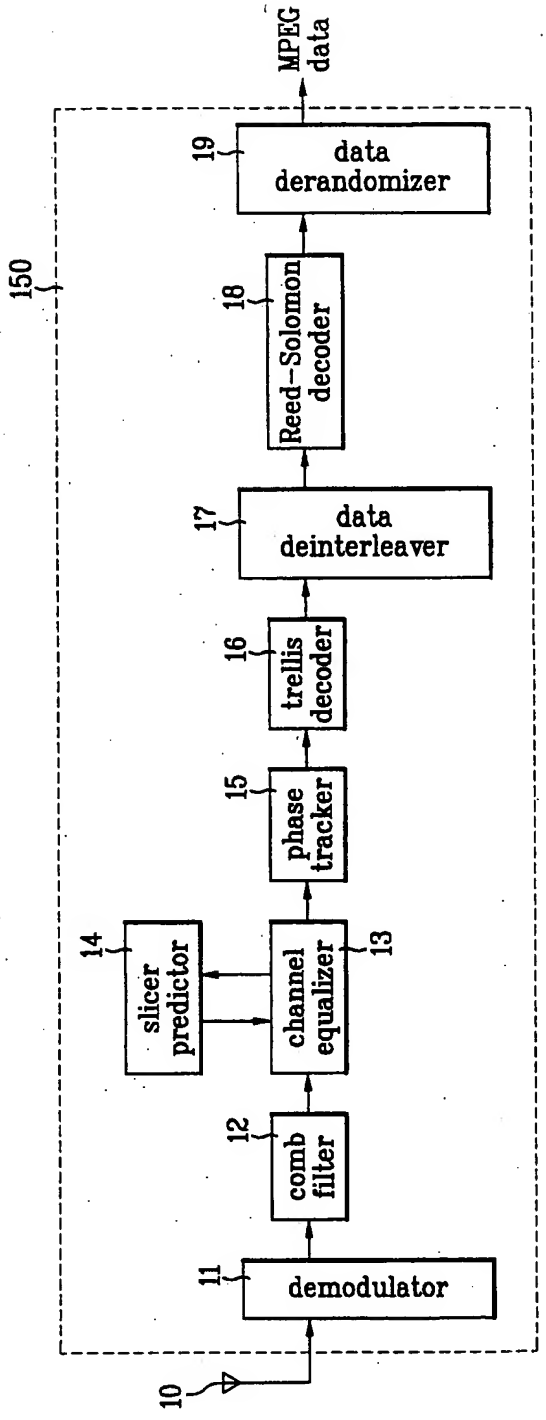

MPEG data
150
19
data derandomizer
18
Reed-Solomon decoder
17
data deinterleaver
16
trellis decoder
15
phase tracker
14
slicer predictor
13
channel equalizer
12
comb filter
11
demodulator
10

FIG. 3

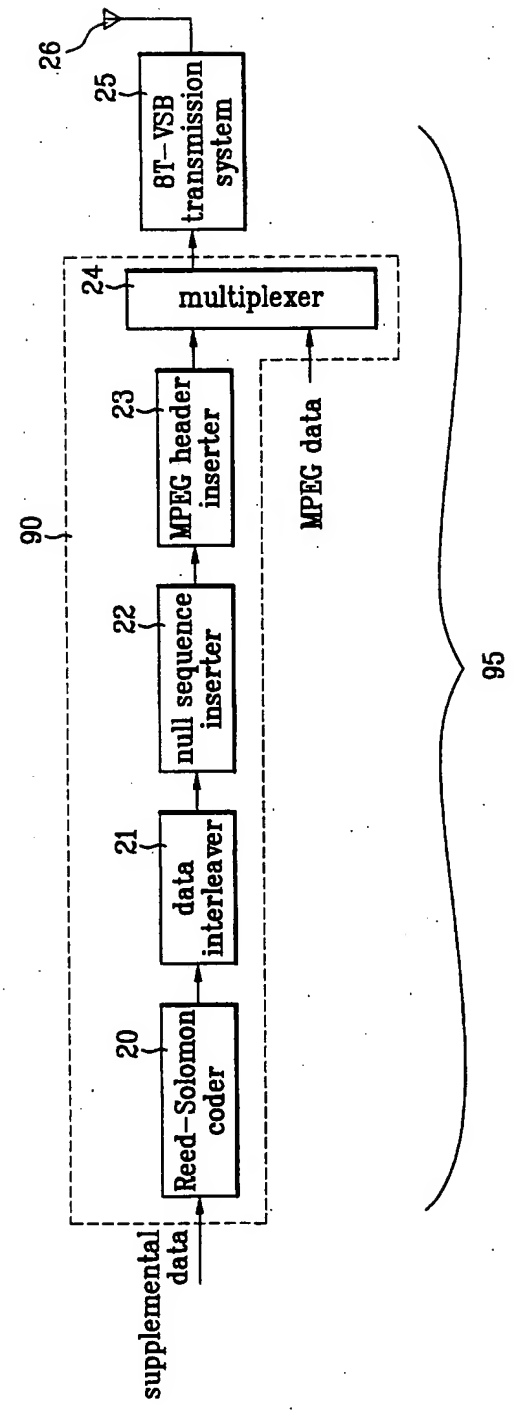

supplemental data
Reed-Solomon coder
20
data interleaver
21
null sequence inserter
22
MPEG header inserter
23
multiplexer
24
8T-VSB transmission system
25
26
MPEG data
90
95

FIG. 4

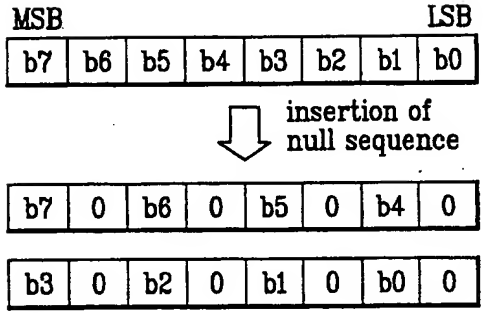

MSB
LSB
b7 b6 b5 b4 b3 b2 b1 b0
insertion of
null sequence
b7 0 b6 0 b5 0 b4 0
b3 0 b2 0 b1 0 b0 0

FIG. 5

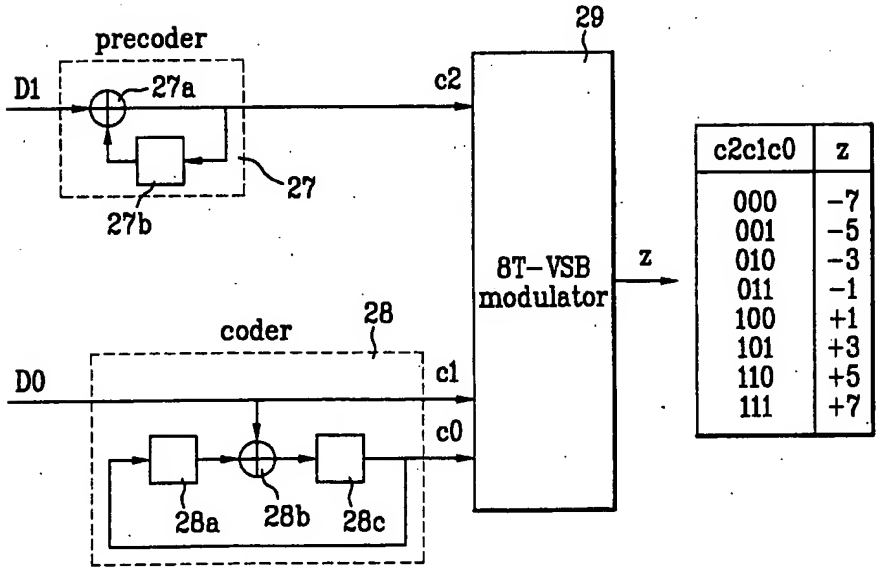

precoder
D1
27a
27
27b
c2
29
8T-VSB
modulator
z
coder
28
D0
c1
c0
28a
28b
28c
c2c1c0 | z
000 | -7
001 | -5
010 | -3
011 | -1
100 | +1
101 | +3
110 | +5
111 | +7

FIG. 6

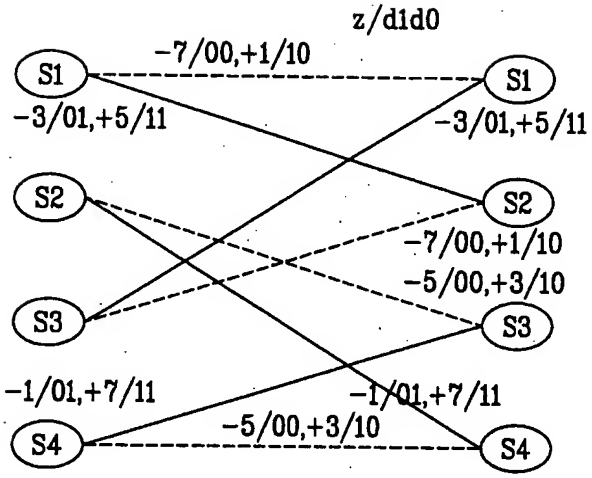

z/d1d0
-7/00,+1/10
S1
S1
-3/01,+5/11
-3/01,+5/11
S2
S2
-7/00,+1/10
-5/00,+3/10
S3
S3
-1/01,+7/11
-1/01,+7/11
-5/00,+3/10
S4
S4

FIG. 7

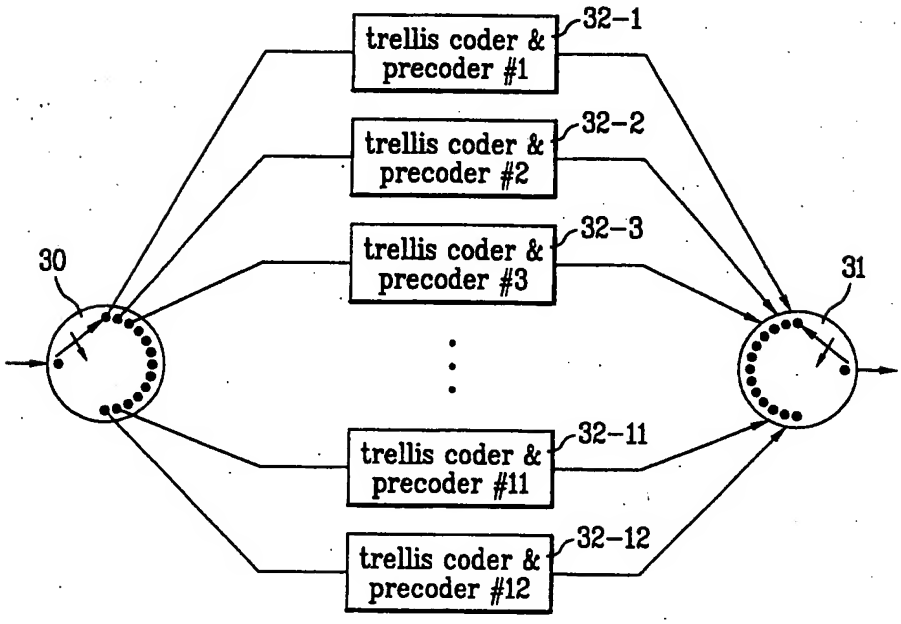

trellis coder & precoder #1
32-1
trellis coder & precoder #2
32-2
trellis coder & precoder #3
32-3
30
31
trellis coder & precoder #11
32-11
trellis coder & precoder #12
32-12

FIG. 8

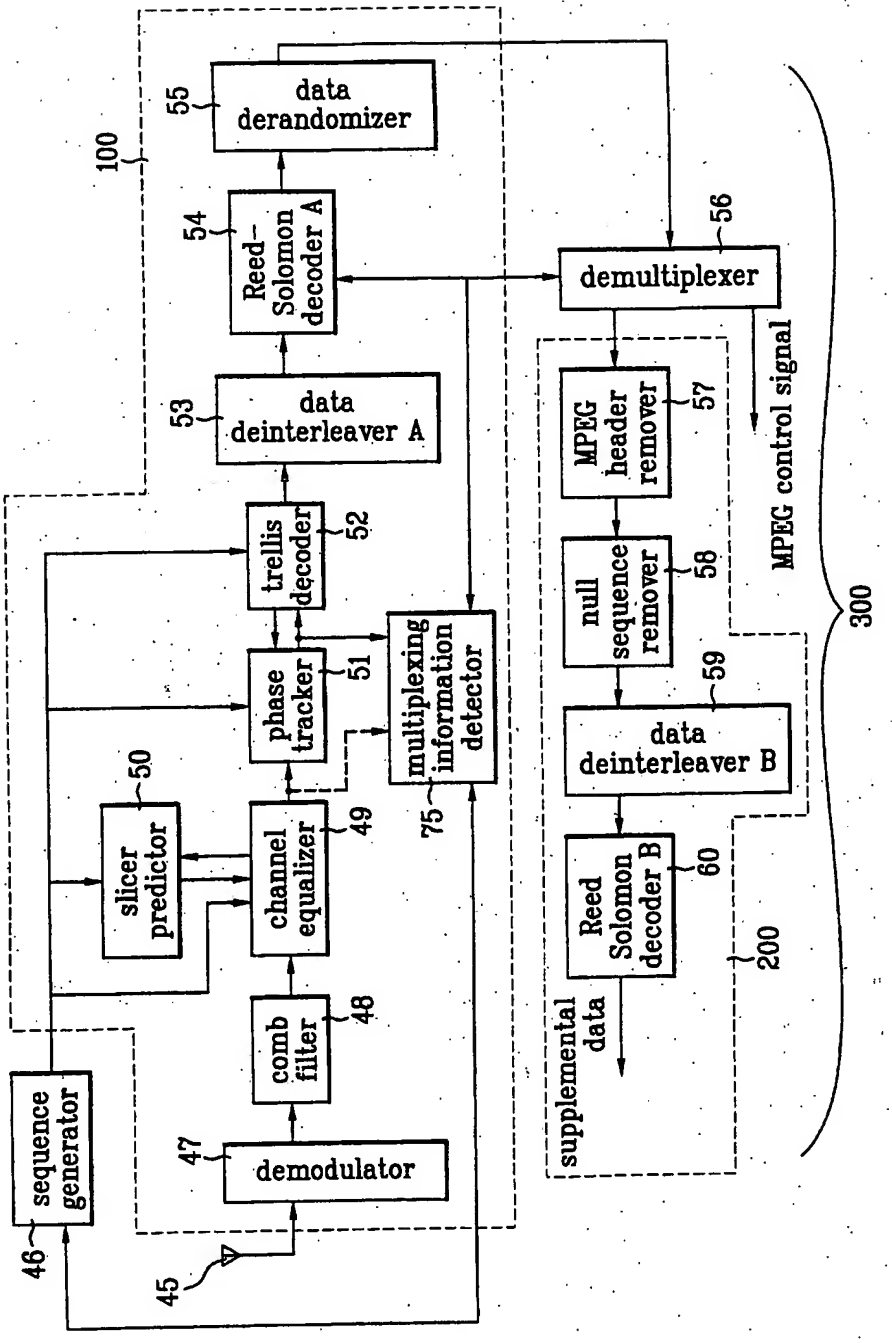

100
55
data derandomizer
54
Reed-Solomon decoder A
53
data deinterleaver A
trellis decoder
52
phase tracker
51
multiplexing information detector
75
slicer predictor
50
channel equalizer
49
comb filter
48
47
demodulator
45
46
sequence generator
56
demultiplexer
MPEG header remover
57
null sequence remover
58
59
data deinterleaver B
Reed Solomon decoder B
60
200
supplemental data
MPEG control signal
300

FIG. 9

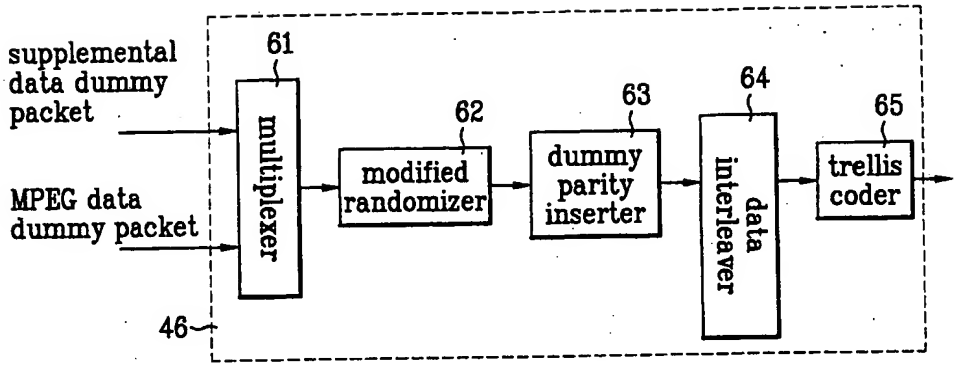


FIG. 10A

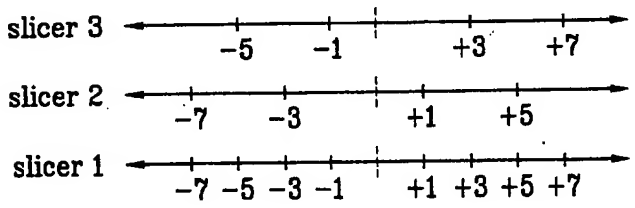


FIG. 10B

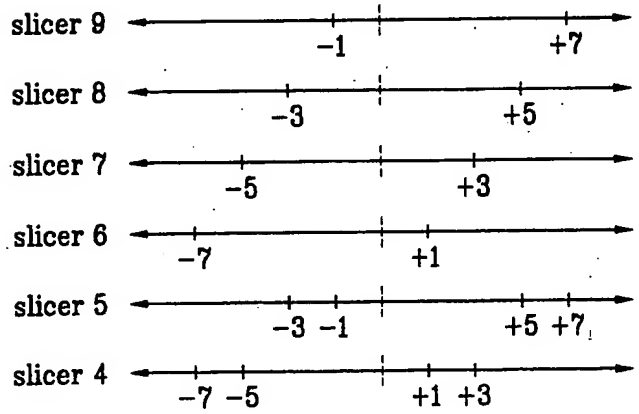
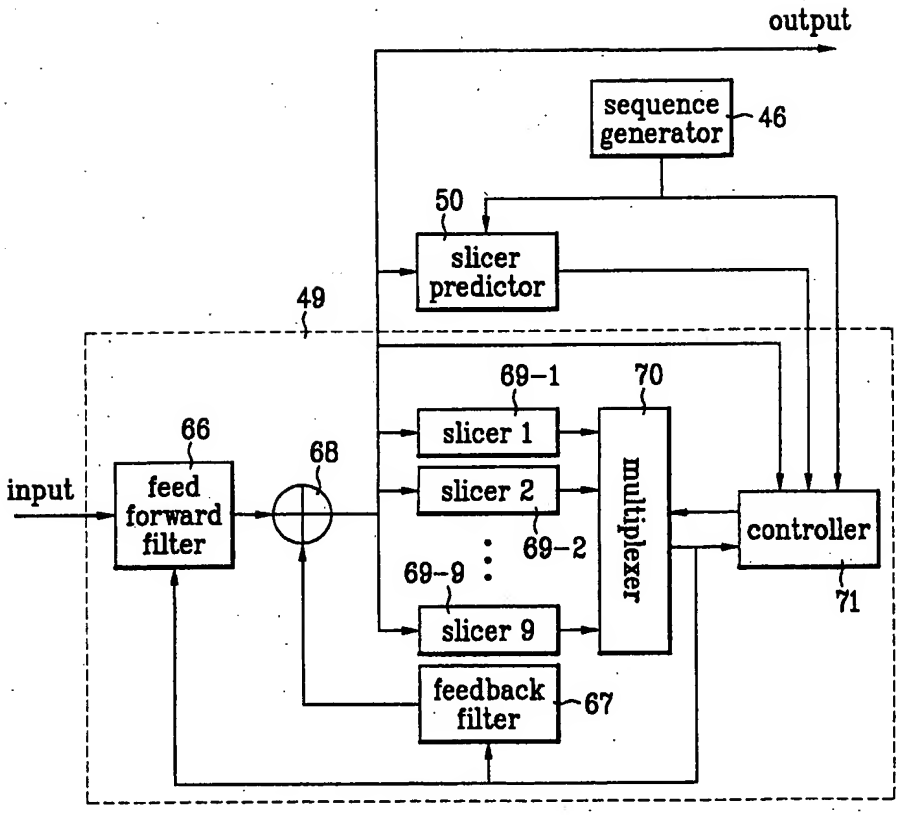


FIG. 11


output
sequence generator
46
50
slicer predictor
49
69-1
70
slicer 1
66
68
input
feed forward filter
slicer 2
69-2
multiplexer
controller
69-9
71
slicer 9
feedback filter
67